

**Listing of the Claims:**

The following is a complete listing of all the claims in the application, with an indication of the status of each:

- 1        1 (Currently Amended).        An image editing apparatus which edits
- 2        image data which has been coded in accordance with an image coding
- 3        method, wherein a plurality of image frames constituting the image data
- 4        are divided into groups, each image frame is coded into one of a first type
- 5        image frame which is created by coding data in the image frame, a second
- 6        type image frame which is created by performing inter-frame
- 7        mono-directional prediction based on a past image frame and coding a
- 8        difference obtained by the prediction, and a third type image frame which
- 9        is created by performing inter-frame dual-directional prediction based on a
- 10       past image frame and a future image frame and coding differences
- 11       obtained by the prediction, and the plurality of image frames are coded so
- 12       that a head frame of each group may be the first type image frame, said
- 13       apparatus comprising:
- 14              an image ~~coder~~ coder which codes each of frames of image data
- 15       into one of the first type image frame, the second type image frame, and
- 16       the third type image frame;
- 17              an image decoder which decodes the image frame coded by said
- 18       image coder; and
- 19              an image data analyzer which analyzes a picture header of a head
- 20       frame in the area to be edited and determines types of image frames
- 21       included in each group,
- 22              wherein  $[[:]]$  said image data analyzer determines whether or not a
- 23       head group which is arranged at a head of an editing target area included in
- 24       the image data is a closed group which does not include the third type
- 25       image frame which is to be decoded by referring to an image frame
- 26       included in a group which is arranged before the head group; and

27           in a case where said image data analyzer determines that the head  
28           group is not the closed group, said image coder converts a portion near the  
29           head of the editing target area into the closed group.

1           2 (Original). The image editing apparatus according to claim 1, wherein  
2           said image data analyzer determines whether or not the third type image  
3           frame included in the head group is an image frame which is to be decoded  
4           by referring to an image frame included in a group which is arranged  
5           before the head group.

1           3 (Original). The image editing apparatus according to claim 2, wherein:  
2           in a case where said image data analyzer determines that the third type  
3           image frame is to be decoded by referring to an image, frame included in  
4           the group arranged before the head group, the image decoder decodes the  
5           third type image frame; and  
6           said image coder codes the third type image frame which is  
7           determined by said image data analyzer as an image frame to be decoded  
8           by referring to an image frame included in the group arranged before the  
9           head group, and is decoded by said image decoder, into an image frame  
10          which is able to be decoded without referring to an image frame included  
11          in the group arranged before the head group.

1           4 (Original). The image editing apparatus according to claim 1, wherein:  
2           said image coding method is an MPEG method;  
3           each of the groups is a GOP of MPEG;  
4           the first type image frame is an I picture;  
5           the second type image frame is a P picture; and  
6           the third type image frame is a B picture.

1           5 (Currently Amended). An image editing apparatus which edits

2 image data which has been coded in accordance with an MPEG method,  
3 said apparatus comprising:  
4 image data analyzing means for analyzing a picture header of a  
5 head frame in the area to be edited and a structure of image frames  
6 included in each GOP of the image data, and determining an attribute of  
7 each GOP and picture types of image frames included in each GOP;  
8 conversion point detecting means for detecting a GOP which needs  
9 to be re-coded  
10 from an editing target area of the image data, and an image frame which  
11 needs to be re-coded from the detected GOP;  
12 image decoding means for decoding the image frame which needs  
13 to be re-coded detected by said conversion point detecting means;  
14 GOP converting means for creating a new GOP by re-coding the  
15 image frame decoded by said image expanding means; and  
16 image data concatenating means for concatenating a plurality of  
17 image data which are cut out as editing target areas,  
18 wherein [[:]] said image data analyzing means determines whether  
19 or not a head GOP which is arranged at a head of the editing target area is  
20 a closed GOP; and  
21 in a case where said image data analyzing means determines that  
22 the head GOP of the editing target area is not a closed GOP, said GOP  
23 converting means converts a portion near the head of the editing target area  
24 into a closed GOP.

1 6 (Currently Amended). An image editing apparatus which edits  
2 image data which has been coded in accordance with an image coding  
3 method, wherein a plurality of image frames constituting the image data  
4 are divided into groups, each image frame is coded into one of a first type  
5 image frame which is created by coding based on data in the image frame,  
6 a second type image frame which is created by performing inter-frame

7 mono-directional prediction based on a past image frame, and a third type  
8 image frame which is created by performing inter-frame dual-directional  
9 prediction based on a past image frame and a future image frame, and the  
10 image data is coded so that a head frame of each group may be the first  
11 type image frame, said apparatus comprising:  
12 an image encoder which codes each of frames of image data into  
13 one of the first type image frame, the second type image frame, and the  
14 third type image frame in accordance with said image coding method;  
15 an image decoder which decodes the image frame coded by said  
16 image encoder; and  
17 an image data analyzer which analyzes a picture header of a head  
18 frame in the area to be edited and determines types of image frames  
19 included in each group,  
20 wherein  $[[:]]$  in a case where said image data analyzer determines  
21 that a head image frame which is arranged at a head of an editing target  
22 area included in the image data is not the first type image frame, said  
23 image decoder decodes the head image frame, and each image frame  
24 appearing between the head image frame and the first type image frame  
25 which appears first after the head image frame; and  
26 said image encoder re-codes the image frames which are created by  
27 decoding the head image frame and each image frame appearing between  
28 the head image frame and the first type image frame which appears first  
29 after the head image frame, and re-codes the head image frame into the  
30 first type image frame, and re-codes any of the third type image frame  
31 appearing after the head image frame into an image frame which is able to  
32 be decoded without referring to an image frame arranged before the head  
33 image frame.

1 7 (Currently Amended). The image editing apparatus ~~according to~~  
2 ~~claim 6~~ which edits image data which has been coded in accordance with

3        an image coding method, wherein a plurality of image frames constituting  
4        the image data are divided into groups, each image frame is coded into one  
5        of a first type image frame which is created by coding based on data in the  
6        image frame, a second type image frame which is created by performing  
7        inter-frame mono-directional prediction based on a past image frame, and  
8        a third type image frame which is created by performing inter-frame  
9        dual-directional prediction based on a past image frame and a future image  
10       frame, and the image data is coded so that a head frame of each group may  
11       be the first type image frame, said apparatus comprising:  
12                an image encoder which codes each of frames of image data into  
13                one of the first type image frame, the second type image frame, and the  
14                third type image frame in accordance with said image coding method;  
15                an image decoder which decodes the image frame coded by said  
16                image encoder; and  
17                an image data analyzer which determines types of image frames  
18                included in each group,  
19                wherein in a case where said image data analyzer which analyzes a  
20                picture header of a head frame in the area to be edited and determines that  
21                a head image frame which is arranged at a head of an editing target area  
22                included in the image data is not the first type image frame, said image  
23                decoder decodes the head image frame, and each image frame appearing  
24                between the head image frame and the first type image frame which  
25                appears first after the head image frame;  
26                said image encoder re-codes the image frames which are created by  
27                decoding the head image frame and each image frame appearing between  
28                the head image frame and the first type image frame which appears first  
29                after the head image frame, and re-codes the head image frame into the  
30                first type image frame, and re-codes any of the third type image frame  
31                appearing after the head image frame into an image frame which is able to  
32                be decoded without referring to an image frame arranged before the head

33        image frame, and wherein:  
34                in a case where said image data analyzer determines that the head  
35        image frame of the editing target area is not the first type image frame, the  
36        image decoder decodes any of ~~the~~ third type image ~~frame~~ frames that  
37        ~~appears~~ appear after ~~the~~ a first type image frame which appears first after  
38        the head image frame if any of the third type image ~~frame~~ frames is an  
39        image frame which is to be decoded by referring to an image frame which  
40        is arranged before the first type image frame; and  
41                said image encoder re-codes the image frame which is created by  
42        decoding any of the third type image frame that appears after the first type  
43        image frame which appears first after the head image frame.

1        8 (Original). The image editing apparatus according to claim 6,  
2                wherein when said image encoder re-codes the image frames which  
3        are created by decoding each frame appearing between the head image  
4        frame and the first type image frame which appears first after the head  
5        image frame, said image encoder re-codes any of the third type image  
6        frame that appears after the head image frame into the third type image  
7        frame that is able to be decoded without referring to an image frame which  
8        is arranged before the head image frame.

1        9 (Original). The image editing apparatus according to claim 6, wherein:  
2                in a case where said image data analyzer determines that the head  
3        image frame of the editing target area is the first type image frame, said  
4        image decoder decodes any of the third type image frame that appears after  
5        the head image frame; and  
6                said image encoder re-codes the image frame which is created by  
7        decoding any of the third type image frame that appears after the head  
8        image frame into an image frame which is able to be decoded without  
9        referring to an image frame which is arranged before the head image

10 frame.

1 10 (Original). The image editing apparatus according to claim 6, wherein:  
2 in a case where said image data analyzer determines that the head  
3 image frame of the editing target area is the first type image frame, said  
4 image decoder decodes any of the third type image frame that appears after  
5 the head image frame; and  
6 said image encoder re-codes the image frame which is created by  
7 decoding any of the third type image frame that appears after the head  
8 image frame into the first type image frame.

1 11 (Original). The image editing apparatus according to claim 6, wherein:  
2 in a case where said image data analyzer determines that the head  
3 image frame of the editing target area is the first type image frame, said  
4 image decoder decodes any of the third type image frame that appears after  
5 the head image frame; and  
6 said image encoder re-codes the image frame which is created by  
7 decoding any of the third type image frame that appears after the head  
8 image frame into the third type image frame which is able to be decoded  
9 without referring to an image frame which is arranged before the head  
10 image frame.

1 12. The image editing apparatus according to claim 6, wherein  
2 said image coding method is an MPEG method;  
3 each of the groups is a GOP of MPEG;  
4 the first type image frame is an I picture;  
5 the second type image frame is a P picture; and  
6 the third type image frame is a B picture.

1 13 (Currently Amended). An image editing apparatus which edits image

2 data which has been coded in accordance with an image coding method,  
3 wherein a plurality of image frames constituting the image data are divided  
4 into groups, each image frame is coded into one of a first type image frame  
5 which is created by coding based on data in the image frame, a second type  
6 image frame which is created by performing inter-frame mono-directional  
7 prediction based on a past image frame, and a third type image frame  
8 which is created by performing inter-frame dual-directional prediction  
9 based on a past image frame and a future image frame, and the image data  
10 is coded so that a head frame of each group may be the first type image  
11 frame, said apparatus comprising:

12 an image encoder which codes each of frames of image data into  
13 one of the first type image frame, the second type image frame, and the  
14 third type image frame in accordance with said image coding method;  
15 an image decoder which decodes the image frame coded by said  
16 image encoder; and  
17 an image data analyzer which analyzes a picture header of a head  
18 frame in the area to be edited and determines types of image frames  
19 included in each group,

20 wherein [[:]] said image data analyzer determines whether a first  
21 condition that the first type image frame which appears first in an editing  
22 target area included in the image data coded in accordance with said image  
23 coding method is a head image frame which is arranged at a head of a  
24 group, and

25 a second condition that the group is a closed group which does not  
26 include the third type image frame which is to be decoded by referring to  
27 an image frame included in a group which is arranged before the group are  
28 satisfied or not; in accordance with a result of determining the first  
29 condition and the second condition, said image decoder decodes any of the  
30 third type image frame that appears after the first type image frame  
31 appearing first in the editing target area and that needs to be re-coded; and



32        said image encoder re-codes the image frame which is created by decoding  
33        any of the third type image frame that appears after the first type image  
34        frame which appears first in the editing target area.

1        14 (Original). The image editing apparatus according to claim 13, wherein:  
2        in a case where said image data analyzer determines that one of the first  
3        condition and the second condition is not satisfied, said image decoder  
4        decodes any of the third type image frame that appears after the first type  
5        image frame which appears first in the editing target area; and  
6        said image encoder re-codes the image data which is created by decoding  
7        any of the third type image frame that appears after the first type image  
8        frame which appears first in the editing target area.

1        15 (Original). The image editing apparatus according to claim 13, wherein:  
2        in a case where said image data analyzer determines that the first condition  
3        is satisfied and the second condition is not satisfied, said image encoder  
4        re-codes the image frame which is created by decoding any of the third  
5        type image frame that appears after the first type image frame which  
6        appears first in the editing target area into the first type image frame.

1        16 (Original). The image editing apparatus according to claim 13, wherein  
2        in a case where said image data analyzer determines that the first condition  
3        is satisfied and the second condition is not satisfied, said image encoder  
4        re-codes the image frame which is created by decoding any of the third  
5        type image frame that appears after the first type image frame which  
6        appears first in the editing target area into the third type image frame  
7        which is able to be decoded without referring to an image frame which is  
8        arranged before the head image frame.

1        17 (Original). The image editing apparatus according to claim 13, wherein

2 in a case where said image data analyzer determines that the first condition  
3 and the second condition are satisfied, said image editing apparatus copies  
4 the image frame which is created by decoding any of the third type image  
5 frame that appears after the first type image frame which appears first in  
6 the editing target area to the image data after being edited.

1 18 (Original). The image editing apparatus according to claim 13, wherein  
2 said image coding method is an MPEG method;  
3 each of the groups is a GOP of MPEG;  
4 the first type image frame is an I picture;  
5 the second type image frame is a P picture; and  
6 the third type image frame is a B picture.

1 19 (Original). An image editing method for editing image data which has  
2 been coded in accordance with an image coding method, wherein a  
3 plurality of image frames constituting the image data are divided into  
4 groups, each image frame is coded into one of a first type image frame  
5 which is created by coding based on data in the image frame, a second type  
6 image frame which is created by performing inter-frame mono-directional  
7 prediction based on a past image frame, and a third type image frame  
8 which is created by performing inter-frame dual-directional prediction  
9 based on a past image frame and a future image frame, and the plurality of  
10 image frames are coded so that a head frame of each group may be the first  
11 type image frame, said image editing method comprising:  
12 setting an editing target area in the image data which has been  
13 coded in accordance with said image coding method;  
14 determining whether a head group which is arranged at a head of  
15 the editing target area is a closed group which does not include the third  
16 type image frame which is to be decoded by referring to an image frame  
17 included in a group which is arranged before the head group; and

18           converting a portion near the head of the editing target area into the  
19   closed group in a case where said determining determines that the head  
20   group is not the closed group.

1       20 (Original). The image editing method according to claim 19, further  
2   comprising:

3           determining whether any of the third type image frame included in  
4   the head group of the editing target area is an image frame which is to be  
5   decoded by referring to an image frame included in a group which is  
6   arranged before the head group;

7           decoding any of the third type image frame determined as an image  
8   frame which is to be decoded by referring to an image frame included in a  
9   group which is arranged before the head group; and

10          coding any of the decoded third type image frame into an image  
11   frame which is able to be decoded without referring to an image frame  
12   included in a group which is arranged before the head group.

1       21(Original). The image editing method according to claim 19, wherein  
2          said image coding method is an MPEG method;  
3          each of the groups is a GOP of MPEG;  
4          the first type image frame is an I picture;  
5          the second type image frame is a P picture; and  
6          the third type image frame is a B picture.

1       22 (Original). An image editing method for editing image data which has  
2   been coded in accordance with an MPEG method, said image editing  
3   method comprising:

4          setting one or more editing target areas in the coded image data;

5          determining whether a head GOP which is arranged at a head of  
6   each of the one or 5 more editing target areas is a closed GOP;

7               determining a picture type of a head image frame which is arranged  
8   at the head of each editing target area;  
9               detecting a GOP which needs to be re-coded, and an image frame  
10   which is included in the GOP and needs to be re-coded in accordance with  
11   a result of said determining whether a head GOP of each editing target area  
12   is a closed GOP, and a result of said determining a picture type of a head  
13   image frame of each editing target area; and  
14              re-coding the detected image frame which needs to be re-coded,  
15   after it is decoded.

1   23 (Original). The image editing method according to claim 22, further  
2   comprising:

3              determining a picture type of a next image frame which is arranged  
4   next to the head image frame of each editing target area, in a case where  
5   said determining whether a head GOP is a closed GOP determines that the  
6   head GOP of each editing target area is not a closed GOP;

7              decoding the next image frame and following image frames which  
8   are B pictures, in a case where said determining a picture type of a next  
9   image frame determines that the next image frame is a B picture, after  
10   decoding an image frame which is an I picture which is encountered first  
11   when going back in a reverse direction from the head image frame, each  
12   image frame between the encountered image frame and the head image  
13   frame, and the head image frame;

14             re-coding each decoded image frame, and re-coding the image  
15   frames which are created by decoding the following image frames which  
16   are B pictures into image frames which are able to be decoded without  
17   referring to an image frame which is arranged before the head image  
18   frame; and

19             recording each of the image frames which are created by re-coding  
20   the head image frame and the following image frames which are B pictures

21 after those image frame are decoded.

1 24 (Original). The image editing method according to claim 22, further  
2 comprising:

3 decoding the head image frame of each editing target area in a case  
4 where said determining a picture type of a head image frame determines  
5 that the head image frame is a P picture, and also decoding each image  
6 frame appearing after the head image frame and before an image frame  
7 which is an I picture which appears first after the head image frame; and  
8 re-coding the image frames which are created by decoding the head  
9 image frame and each image frame appearing after the head image frame,  
10 and re-coding the image frame which is created by decoding the head  
11 image frame into an image frame which is an I picture.

1 25 (Original). The image editing method according to claim 22, further  
2 comprising:

3 expanding the image frame which needs to be re-coded by  
4 decoding:  
5 creating a new GOP by re-coding the image frame which is  
6 decoded by said expanding; and  
7 concatenating the one or more editing target areas.

1 26 (Original). An image editing method for editing image data which has  
2 been coded in accordance with an image coding method, wherein a  
3 plurality of image frames constituting the image data are divided into  
4 groups, each image frame is coded into one of a first type image frame  
5 which is created by coding based on data in the image frame, a second type  
6 image frame which is created by performing inter-frame mono-directional  
7 prediction based on a past image frame, and a third type image frame  
8 which is created by performing inter-frame dual-directional prediction

9 based on a past image frame and a future image frame, and the image data  
10 is coded so that a head frame of each group may be the first type image  
11 frame, said image editing method comprising:  
12 setting an editing target area in the image data which has been  
13 coded in accordance with said image coding method;  
14 determining a type of a head image frame which is arranged at a  
15 head of the editing target area;  
16 decoding the head image frame of the editing target area and each  
17 image frame appearing between the head image frame and the first type  
18 image frame which appears first after the head image frame, in a case  
19 where said determining a type determines that the head image frame is not  
20 the first type image frame; and  
21 re-coding the image frames created by decoding the head image  
22 frame and each image frame appearing between the head image frame and  
23 the first type image frame which appears first after the head image frame,  
24 and re-coding the head image frame into the first type image frame, and  
25 re-coding any of the third type image frame that appears after the head  
26 image frame into an image frame which is able to be decoded without  
27 referring to an image frame which is arranged before the head image  
28 frame.

1 27 (Currently Amended). ~~The image editing method according to claim 26~~  
2 An image editing method for editing image data which has been coded in  
3 accordance with an image coding method, wherein a plurality of image  
4 frames constituting the image data are divided into groups, each image  
5 frame is coded into one of a first type image frame which is created by  
6 coding based on data in the image frame, a second type image frame which  
7 is created by performing inter-frame mono-directional prediction based on  
8 a past image frame, and a third type image frame which is created by  
9 performing inter-frame dual-directional prediction based on a past image

10 frame and a future image frame, and the image data is coded so that a head  
11 frame of each group may be the first type image frame, said image editing  
12 method comprising:

13 setting an editing target area in the image data which has been  
14 coded in accordance with said image coding method;

15 determining a type of a head image frame which is arranged at a  
16 head of the editing target area;

17 decoding the head image frame of the editing target area and each  
18 image frame appearing between the head image frame and the first type  
19 image frame which appears first after the head image frame, in a case  
20 where said determining a type determines that the head image frame is not  
21 the first type image frame; and

22 re-coding the image frames created by decoding the head image  
23 frame and each image frame appearing between the head image frame and  
24 the first type image frame which appears first after the head image frame,  
25 and re-coding the head image frame into the first type image frame, and  
26 re-coding any of the third type image frame that appears after the head  
27 image frame into an image frame which is able to be decoded without  
28 referring to an image frame which is arranged before the head image  
29 frame, and further comprising:

30 decoding any of the third type image frame frames that appears  
31 appear after the first type image frame which appears first after the head  
32 image frame if any of the third type image frame is an image frame frames  
33 which is to be decoded by referring to an image frame which is arranged  
34 before the first type image frame, in a case where said determining a type  
35 determines that the head image frame of the editing target area is not the  
36 first type image frame; and

37 re-coding the image frame which is created by decoding any of the  
38 third type image frame that appears after the first type image frame which  
39 appears first after the head image frame.

1       28 (Original). The image editing method according to claim 26, further  
2       comprising  
3               re-coding the image frames created by decoding the head image  
4       frame and each image frame appearing between the head image frame and  
5       the first type image frame which appears first after the head image frame,  
6       and re-coding any of the third type image frame that appears after the head  
7       image frame into the third type image frame which is able to be decoded  
8       without referring to an image frame which is arranged before the head  
9       image frame.

1       29 (Original). The image editing method according to claim 26, further  
2       comprising:  
3               decoding any of the third type image frame that appears after the  
4       head image frame of the editing target area in a case where said  
5       determining a type determines that the head image frame is the first type  
6       image frame; and  
7               re-coding the image frame which is created by decoding any of the  
8       third type image frame that appears after the head image frame into an  
9       image frame which is able to be decoded without referring to an image  
10      frame which is arranged before the head image frame.

1       30 (Original). The image editing method according to claim 26, further  
2       comprising:  
3               decoding any of the third type image frame that appears after the  
4       head image frame of the editing target area in a case where said  
5       determining a type determines that the head image frame is the first type  
6       image frame; and  
7               re-coding the image frame which is created by decoding any of the  
8       third type image frame that appears after the head image frame into the  
9       first type image frame.



1       31 (Original). The image editing method according to claim 26, further  
2       comprising:  
3             decoding any of the third type image frame that appears after the  
4       head image frame of the editing target area in a case where said  
5       determining a type determines that the head image frame is the first type  
6       image frame; and  
7             re-coding the image frame which is created by decoding any of the  
8       third type image frame that appears after the head image frame into the  
9       third type image frame which is able to be decoded without referring to an  
10      image frame which is arranged before the head image frame.

1       32 (Original). The image editing method according to claim 26, wherein:  
2             said image coding method is an MPEG method;  
3             each of the groups is a GOP of MPEG;  
4             the first type image frame is an I picture;  
5             the second type image frame is a P picture; and  
6             the third type image frame is a B picture.

1       33 (Original). An image editing method for editing image data which has  
2       been coded in accordance with an image coding method, wherein a  
3       plurality of image frames constituting the image data are divided into  
4       groups, each image frame is coded into one of a first type image frame  
5       which is created by coding based on data in the image frame, a second type  
6       image frame which is created by performing inter-frame mono-directional  
7       prediction based on a past image frame, and a third type image frame  
8       which is created by performing inter-frame dual-directional prediction  
9       based on a past image frame and a future image frame, and the image data  
10      is coded so that a head frame of each group may be the first type image  
11      frame, said image editing method comprising:  
12             setting an editing target area in the image data which has been

13 coded in accordance with said image coding method;  
14 determining whether a first condition that the first type image  
15 frame which appears first in the editing target area is a head image frame  
16 which is arranged at a head of a group and a second condition that the  
17 group is a closed group which does not include the third type image frame  
18 which is to be decoded by referring to an image frame included in a group  
19 which is arranged before the group are satisfied or not;  
20 decoding any of the third type image frame that appears after the  
21 first type image frame which appears first in the editing target area and that  
22 needs to be re-coded, in accordance with a result of determining the first  
23 condition and the second condition; and  
24 re-coding the image frame which is created by decoding any of the  
25 third type image frame that appears after the first type image frame which  
26 appears first in the editing target area.

1 34 (Original). The image editing method according to claim 33, further  
2 comprising:  
3 decoding any of the third type image frame that appears after the  
4 first type image frame which appears first in the editing target area, in a  
5 case where said determining determines that one of the first condition and  
6 the second condition is not satisfied; and  
7 re-coding the image frame which is created by decoding any of the  
8 third type image frame that appears after the first type image frame which  
9 appears first in the editing target area.

1 35 (Original). The image editing method according to claim 33, further  
2 comprising  
3 re-coding the image frame which is created by decoding any of the  
4 third type image frame that appears after the first type image frame which  
5 appears first in the editing target area into the first type image frame, in a

6 case where said determining determines that the first condition is satisfied,  
7 and the second condition is not satisfied.

1 36 (Original). The image editing method according to claim 33, further  
2 comprising  
3 re-coding the image frame which is created by decoding any of the  
4 third type image frame that appears after the first type image frame which  
5 appears first in the editing target area into the third type image frame  
6 which is able to be decoded without referring to an image frame which is  
7 arranged before the head image frame, in a case where said determining  
8 determines that the first condition is satisfied, and the second condition is  
9 not satisfied.

1 37 (Original). The image editing method according to claim 33, further  
2 comprising  
3 copying the image frame which is created by decoding any of the third type  
4 image frame that appears after the first type image frame which appears  
5 first in the editing target area to the image data after being edited, in a case  
6 where said determining determines that the first condition and the second  
7 condition are satisfied.

1 38 (Currently Amended). ~~The image editing method according to claim 33~~  
2 An image editing method for editing image data which has been coded in  
3 accordance with an image coding method, wherein a plurality of image  
4 frames constituting the image data are divided into groups, each image  
5 frame is coded into one of a first type image frame which is created by  
6 coding based on data in the image frame, a second type image frame which  
7 is created by performing inter-frame mono-directional prediction based on  
8 a past image frame, and a third type image frame which is created by  
9 performing inter-frame dual-directional prediction based on a past image

10     frame and a future image frame, and the image data is coded so that a head  
11     frame of each group may be the first type image frame, said image editing  
12     method comprising:  
13         setting an editing target area in the image data which has been  
14     coded in accordance  
15     with said image coding method;  
16         determining whether a first condition that the first type image  
17     frame which appears first in the editing target area is a head image frame  
18     which is arranged at a head of a group and a second condition that the  
19     group is a closed group which does not include the third type image frame  
20     which is to be decoded by referring to an image frame included in a group  
21     which is arranged before the group are satisfied or not;  
22         decoding any of the third type image frame that appears after the  
23     first type image frame which appears first in the editing target area and that  
24     needs to be re-coded, in accordance with a result of determining the first  
25     condition and the second condition; and  
26         re-coding the image frame which is created by decoding any of the  
27     third type image frame that appears after the first type image frame which  
28     appears first in the editing target area, further comprising  
29         inserting a first or second type image frame which appears  
30     immediately before a head image frame which is arranged at the head of  
31     the editing target area into the head of the editing target area, in a case  
32     where the head image frame is the third type image frame.

1     39 (Original). The image editing method according to claim 33, wherein:  
2         said image coding method is an MPEG method;  
3         each of the groups is a GOP of MPEG;  
4         the first type image frame is an I picture;  
5         the second type image frame is a P picture; and  
6         the third type image frame is a B picture.

1        40 (New). An image editing apparatus which edits image data which has  
2        been coded in accordance with an image coding method, wherein a  
3        plurality of image frames constituting the image data are divided into  
4        groups, each image frame is coded into one of a first type image frame  
5        which is created by coding data in the image frame, a second type image  
6        frame which is created by performing inter-frame mono-directional  
7        prediction based on a past image frame and coding a difference obtained  
8        by the prediction, and a third type image frame which is created by  
9        performing inter-frame dual directional prediction based on a past image  
10       frame and a future image frame and coding differences obtained by the  
11       prediction, and the plurality of image frames are coded so that a head  
12       frame of each group may be the first type image frame, said apparatus  
13       comprising:  
14                an image coder which codes each of frames of image data into one  
15       of the first type image frame, the second type image frame, and the third  
16       type image frame;  
17                an image decoder which decodes the image frame coded by the  
18       image coder; and  
19                an image data analyzer which detects a head group which is  
20       arranged at a head of an editing target area included in the image data and  
21       determines types of image frames included in each group,  
22                wherein: said image data analyzer determines whether or not the  
23       head group which is arranged at a head of the editing target area included  
24       in the image data is a closed group which does not include the third type  
25       image frame which is to be decoded by referring to an image frame  
26       included in a group which is arranged before the head group; and  
27                in a case where said image data analyzer determined the head group  
28       is not the closed group which does not include the third type image frame,  
29       said image coder converts a portion near the head of the editing target area

30       into the closed group.

1       41 (New).   An image editing apparatus which edits image data which  
2       has been coded in accordance with an MPEG method, said apparatus  
3       comprising:

4               image data analyzing means for analyzing a structure of image  
5       frames included in each GOP of the image data, and determining an  
6       attribute of each GOP and picture types of image frames included in each  
7       GOP;

8               conversion point detecting means for detecting a GOP which needs  
9       to be re-coded from an editing target area of the image data, and an image  
10      frame which needs to be re-coded from the detected GOP;

11              image decoding means for decoding the image frame which needs  
12      to be re-coded detected by said conversion point detecting means;

13              GOP converting means for creating a new GOP by re-coding the  
14      image frame decoded by said image expanding means; and

15              image data concatenating means for concatenating a plurality of  
16      image data which are cut out as editing target areas,

17              wherein: said image data analyzing means detects a head GOP  
18      which is arranged at a head of the editing target area and determines  
19      whether or not the head GOP which is arranged at the head of the editing  
20      target area is a closed GOP; and

21              in a case where said image data analyzing means determines that  
22      the head GOP of the editing target area is not a closed GOP, said GOP  
23      converting means converts a portion near the head of the editing target area  
24      into a closed GOP including no B picture.